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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/923,353	08/08/2001	Philippe Boire	211827US0CONT	3554

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EXAMINER	
PIZIALI, ANDREW T	

ART UNIT	PAPER NUMBER
1794	

NOTIFICATION DATE	DELIVERY MODE
07/29/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	09/923,353	BOIRE ET AL.	
	Examiner	Art Unit	
	Andrew T. Piziali	1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 July 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *08 August 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date. _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 6/3/2008 has been entered.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claim 25 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention.

The specification fails to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make a titanium oxide coating wherein the crystallized titanium oxide is in the form of crystallites with an average size of between 60 and 100 nm. The specification appears to enable one skilled in the art to make crystallized titanium oxide in the form of crystallites with a size of between 20 to 30 nm (page 21, lines 6-10 and page 24, lines 15-18), but the specification clearly does not teach or suggest how the method of making is to be modified to create the claimed crystallites. The specification does not enable one skilled in the art to make the crystallites with an average size of between 60 and 100 nm.

Claim Rejections - 35 USC § 102/103

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claim 25 is rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over USPN 5,721,054 to Vandiest.

Vandiest discloses a coated glass glazing comprising a coating comprising titanium oxide and/or tin oxide, wherein the titanium oxide may be in the anatase crystal structure (column 2, lines 18-44, column 3, lines 19-34 and column 4, lines 14-19). Vandiest discloses that the coating thickness ranges from 35 to 90 nm (column 3, lines 17-18).

Vandiest does not appear to mention the specific crystallite average size, but Vandiest does disclose that the layers of the coated substrate may be deposited by thermal decomposition, such as by chemical vapor deposition (CVD), of titanium precursors, such as a metallic halide precursors (column 5, lines 31-44 and column 7, lines 12-15). Considering that the current specification discloses that a substantially identical CVD method may preferably be used to deposit the layers of the coated substrate (page 13, lines 9-34 and page 24, lines 15-18), it

appears that the currently claimed properties of the coated substrate are inherently possessed by the coated substrate taught by Vandiest. It appears that the titanium oxide film of Vandiest possesses a crystallite average size between 60 and 100nm.

The Patent and Trademark Office can require applicants to prove that prior art products do not necessarily or inherently possess characteristics of claimed products where claimed and prior art products are identical or substantially identical, or are produced by identical or substantially identical processes; burden of proof is on applicants where rejection based on inherency under 35 U.S.C. § 102 or on prima facie obviousness under 35 U.S.C. § 103, jointly or alternatively, and Patent and Trademark Office's inability to manufacture products or to obtain and compare prior art products evidences fairness of this rejection, *In re Best, Bolton, and Shaw*, 195 USPQ 431 (CCPA 1977).

Claim Rejections - 35 USC § 103

7. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 3,984,591 to Plumat in view of any one of USPN 5,721,054 to Vandiest or USPN 6,284,314 to Kato.

Plumat discloses a coated glass glazing comprising a titanium oxide coating (see entire document including column 1, lines 35-41, column 2, lines 23-32 and lines 61-67, column 3, lines 39-42 and lines 53-65, column 4, lines 33-62, column 6, lines 15-45, and column 7, lines 9-14). Plumat discloses that the film thickness ranges from some hundred to some thousand angstroms (some ten to hundred nanometers) (column 4, lines 51-62).

Plumat is silent with regards to specific titanium oxide, therefore, it would have been necessary and thus obvious to look to the prior art for conventional titanium oxide. Vandiest and Kato each provide this conventional teaching showing that it is known in the art to use anatase titanium oxide (see entire documents including column 3, lines 30-34 of Vandiest and column 3, lines 51-65 of Kato). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to make the titanium oxide from anatase titanium oxide motivated by the expectation of successfully practicing the invention of Plumat.

Plumat does not mention crystallite average size, but Plumat does disclose that the layers of the coated substrate may be deposited by spray coating (column 2, line 61 through column 3, line 5). Considering that the current specification discloses that a substantially identical spray coating method may preferably be used to deposit the layers of the coated substrate (paragraph bridging pages 13 and 14), it appears that the currently claimed properties of the coated substrate are inherently possessed by the coated substrate taught by the applied prior art. It appears that the titanium oxide film inherently possesses a crystallite average size between 60 and 100nm.

Response to Arguments

8. Applicant's arguments filed 6/3/2008 have been fully considered but they are not persuasive.

The applicant asserts that the declaration submitted on 5/22/2006 demonstrates that Vandiest does not provide a mechanically resistant and sufficiently adherent coating in order to be used as a glazing because the declaration submitted on 11/23/2005 demonstrates that the method disclosed by Vandiest does not produce the claimed photocatalytic coating. The applicant asserts that the method disclosed by Vandiest only creates a titanium oxide dust coating. The examiner respectfully disagrees.

The current claims do not exclude the photocatalytic coating from comprising titanium oxide and tin oxide. In fact, the applicant elected by original presentation (see original claim 34) the species drawn a photocatalytic layer comprising titanium oxide and at least one oxide with a lower refractive index than titanium oxide. Tin oxide has a lower refractive index than titanium oxide and Vandiest specifically discloses that that the coating may comprise both titanium oxide and tin oxide (column 4, lines 14-19). The declaration filed on 11/23/2005 specifically states "I believe that, while the conditions given by Vandiest can work well with a mixture of tin tetrachloride and water, this is not the case for titanium tetrachloride and water." Therefore, it appears that the conditions given by Vandiest would work well with a mixture of tin oxide and titanium oxide because the titanium oxide particles mentioned in the declaration would be deposited along with the well formed tin oxide coating.

The applicant asserts that accumulated organic matter could not be decomposed by the titanium oxide coating layer of Vandiest because in Examples 2 and 3 the titanium oxide (non-absorbent) coating layer is buried under the Fe-Co-Cr (absorbent) coating layer. The examiner respectfully disagrees. The applicant has carefully cited only the teachings of Examples 2 and 3 of Vandiest. Although Examples 2 and 3 refer to coated substrates wherein the titanium oxide (non-absorbent) coating layer is buried under the Fe-Co-Cr (absorbent) coating layer, Vandiest clearly discloses that in a preferred embodiment the absorbent coating layer is coated directly on the substrate and the non-absorbent coating layer is an exposed coating layer (column 4, lines 19-30).

The applicant asserts that Kato fails to teach or suggest titanium crystallites having an average size between 60 and 100nm (claims 26-28) or that the coating has a contact angle with water below 5 after exposure to luminous rays (claim 27). The examiner respectfully disagrees. Kato discloses an article comprising a thin film comprising titanium oxide, with anatase crystal structure, on a glass substrate (column 3, lines 52-65 and column 4, lines 37-48). Kato discloses that the layers of the coated substrate may be deposited by a variety of methods including by dip coating (column 3, lines 26-50). Considering that the specification discloses that a dip coating method may be used to deposit the layers of the coated substrate (page 19, lines 26-39), it appears that the currently claimed properties are possessed by the coated substrate taught by Kato.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew T. Piziali whose telephone number is (571) 272-1541. The examiner can normally be reached on Monday-Friday (8:00-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached on (571) 272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Andrew T Piziali/
Primary Examiner, Art Unit 1794